Research Grants for PhD students from the China Scholarship Council

Information Form (please read the guidelines carefully on the website www-csc.utt.fr)

Supervisor's name : KEBIR Given names : Nasreddine

Status (prof., assistant prof., ...) : Associate Professor

Laboratory : Polymers Biopolymers Surfaces (UMR CNRS 6270) Website address : https://www.pbs.cnrs.fr/?rubrique85

Institution : INSA ROUEN NORMANDIE Website address : https://www.insa-rouen.fr/

Scientific competence of the supervisor:

Dr. Nasreddie KEBIR has an expertise of 23 years in the filed of biobased materials synthesis and characterizations, especially in the polyurethane science.

Two major publications in the field proposed for the PhD :

1. DING B., FOLLAIN N., KEBIR N. Macromolecules 58(1): 538–549 (2025).
2. DING B., FOLLAIN N., KEBIR N. ACS Appl. Polym. Mater. 5(12): 10416–10425 (2023)

Website address of the personal page : https://orcid.org/0000-0002-5390-157X

Supervisor's email : nasreddine.kebir@insa-rouen.fr

Description of the research work proposed for a PhD ***Topic # (see list) :*** IV-10

Title : Elaboration and characterization of new bio-based and sustainable aromatic polyurethane and polyurea materials

Subject :

With growing concern for environmental friendliness, the preparation of biobased polymer materials to replace petroleum-based materials has attracted considerable attention from the scientific community and industry alike. In this work, we aim to prepare sustainable aromatic polyurethane and polyurea materials from lignin derivatives. The first part of this work will involve the preparation and full characterization of a set of new aromatic molecules with specific functional groups. This part will be carried out at the CARMEN institute (UMR CNRS 6014). The second part will be carried out at the PBS laboratory (UMR CNRS 6270) and will focus on the use of the new biosourced aromatic molecules to prepare new PolyUrethane Non-Isocyanate (NIPU) and PolyUréa (NIPUrea) materials using the transurethanization approach, which has been extensively studied in our laboratory over the last decade. The thermal and mechanical properties of the resulting materials will be fully characterized.

Keywords :

Polyurethane, polyurea, aromatic, biobased, sustainable, green chemistry

Expected collaborations :

This work will be conducted in collaboration with Pr. Laurent BISCHOFF (laurent.bischoff@univ-rouen.fr) who will be in charge of supervising the organic synthesis of biobased aromatic monomers.

Background required from the applicant :

Applicant must have skills in molecular and macromolecular organic synthesis and characterizations. Experience in organic synthesis of aromatic monomers would be prefered.

Existence of a PDF file detailing the proposal ("yes" or "no") : No

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